REMARKS

Claims 1-7, 9-12, 15-23, 25-28, 31, and 32 are rejected under 35 USC §103 as being unpatentable over Tan et al., U.S. 6,226,323, in view of Batruni, U.S. 5,297,166 and further in view of Agazzi et al., US 6,304,598.

The Examiner's rejection is respectfully traversed.

Independent claims 1, 11, 13, 15, 17, 27, 29, and 31 recite that modified tentative decisions are used to subtract out an estimate of the intersymbol interference, and the second-filtered data produces an estimate of the intersymbol interference.

Tan et al. '323 describes a system for reducing the complexity of an adaptive decision feedback equalizer, for use in connection with a dual-mode QAM/VSB receiver system is described. QAM and VSB symbols, which are expressed in two's complement notation, include an extra bit required to compensate for a fixed offset term introduced by the two's complement numbering system. A decision feedback equalizer includes a decision feedback filter section which operates on symbolic decisions represented by a word length which excludes the added bit representing the offset. The vestigal word is convolved with the decision feedback filter's coefficients, while a DC component, corresponding to the excluded bit, is convolved with the same coefficient values in a correction filter. The two values are summed to provide an ISI compensation signal at the input of a decision device such as a slicer. A DC component representing a pilot tone in VSB transmission systems also introduces a DC component, and additional bits, to a VSB word length. These additional bits are similarly excluded and the vestigal representation convolved with coefficient values in a decision feedback filter. The DC

component, including the pilot tone representation, is convolved with the same coefficient values in a correction filter.

Batruni '166 describes an apparatus for performing blind mode decision feedback equalization with reduced convergence time. In operation, the decision feedback equalizer (DFE) receives a transmitted signal x(n) resulting from transmission of an input signal s(n) through a transmission channel and a receive filter. The apparatus includes a DFE feedback loop having an adaptive filter designed to converge rapidly and iteratively during blind mode decision feedback equalization to a best approximation A'(z) of the unknown, combined, transmission channel and receive filter transfer function A(z).

Agazzi et al. '598 describes reducing power dissipation within a communications system having a plurality of adaptive filters with a plurality of taps, each tap is switchable between an active and an inactive state, each tap also has a coefficient. An acceptable error for the system is specified. This error is typically the mean squared error of the system.

While it is suggested that Tan et al. `323 describes a procedure to anticausally filter tentative decisions, it does not causally filter tentative decisions. Rather, the system of Tan et al. '323 causally filters final (non-tentative) decisions. In column 24, lines 38-51, Tan et al. '323 explains that the decisions made during the most recent N time frames are tentative (i.e. non-final) because the surviving paths are not common, while the decisions made more than N time frames ago are final (non-tentative) because the surviving paths have common branches; this fact is well known to someone skilled in the art. In column 25, lines 4-20, Tan et al. '323 suggests that the N tentative decisions are processed by the second filter anticausally, while M+1 final decisions are processed by the second filter causally. Thus, Tan et al. '323 does not causally

filter tentative decisions. Moreover, Tan et al. '323 does not use a previous a block of tentative decisions from a previous pass according to second filter parameters to generate a second-filtered data so as to produce an estimate of the intersymbol interference

Note Batruni '166 teaches using an adaptive filter 12 to make produce a decision X'(Z). Note the adaptive filter 12 receives as input an input signal S'(Z) and e(Z). Note these input signals are not associated with a previous pass because the inventors would have explicitly shown these input signals as being S'(Z-1) and e(Z-1), associated with a previous pass. All the independent claims recite tentative decisions from a previous pass. Batruni '166 clearly does not teach or suggest such a limitation.

Agazzi et al. '598 describes a filter arrangement 58 used in producing ISI signals using a feedback filter 100 which receives as input a final decision 72 from a current pass. There is no mention in Agazzi et al. '598 that the final decision 72 is associated with a previous pass. All the independent claims recite "a second linear filter for causally and anticausally filtering said ***block of tentative decisions from a previous pass*** according to second filter parameters to ***generate said second-filtered data so as to produce an estimate of the intersymbol interference***."

Also, Applicants question the Examiner's motivation for combining the references of Tan et al. '323, Batruni '166, and Agazzi et al. '598. Tan et al. '323 describes a system using QAM, Batruni '166 describes performing blind mode decision feedback equalization with reduced convergence, and Tan et al. '323 describing reducing power consumption with a communication system having a plurality of adaptive filters. Applicants find the purpose of use underlying each of these references to be contrary to the other. QAM configuration of Tan et al. '323 mostly likely will never perform blind mode decision feedback equalization of Batruni '166 because of

its configuration. Moreover, one of ordinary of skill in the art would never apply the power dissipation technique of Agazzi et al. '598 to systems disclosed in Tan et al. '323 or Batruni '166. Such combination could never be practicable in addition to not meeting the recited claim language.

Therefore, Tan et al. '323, Batruni '166, and Agazzi et al. '598 does not render obvious independent claims 1, 11 15, 17, 27 and 31 respectively.

As to claims 2-7, 9-10, 12, 16, 18-23, 25-26, 28, and 32, they are dependent on claims 1, 11 15, 17, 27 and 31 respectively. Therefore, claims 2-7, 10, 12, 16, 18-23, 26, 28, and 32 are also allowable for the same reasons argued with respect to claims 1, 15, 11, 17, 27 and 31.

Claims 8, 13, 14, 24, 29, and 30 are rejected under 35 USC §103 as being unpatentable over Tan et al. '323, Batruni '166, and Agazzi et al. '598 in view of Meehan, U.S. 6,115,419.

Meehan '419 describes a device for improving signal reception in a signal receiver. The device comprises a beamforming circuit and decision feedback equalizer circuit. The beamforming circuit includes two branches with each circuit branch having two feedforward equalizer circuit and an adder circuit.

Claims 13 and 29 have similar limitations as claims 1 and 17, respectively. However, claims 13 and 29 further recite that the first and second filter parameters are based on an estimate of the channel parameters. In addition, the received data comprises a plurality of received signals received over the plurality of data channels, and the equalizer further comprises a plurality of the first filter corresponding to the plurality of channels.

The arguments provided herein regarding claims 1 and 17 are also applicable to claims 13 and 29. Moreover, Applicants disagree that it would be obvious to have a plurality of data

channels given Tan et al. '323, Batruni '166, and Agazzi et al. '598 deficiencies with respect to removing intersymbol interferences (ISI) in a nonlinear manner. Furthermore, Meehan '419 does not address the deficiencies of Tan et al. '323, Batruni '166, and Agazzi et al. '598. Therefore, Applicants contend that the combination of Tan et al. '323, Batruni '166, Agazzi et al. '598, and Meehan '419 does not render obvious claims 13 and 29 because the deficiencies of Tan et al. '323, Batruni '166, and Agazzi et al. '598 argued with respect to claims 1 and 17 are not obvious to one of ordinary skill.

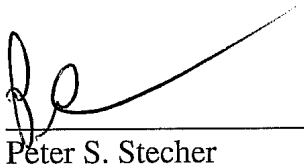
As to claims 14 and 30, it is dependent from claims 13 and 29. Therefore, claims 14 and 30 are also allowable for the same reasons argued with respect to claims 13 and 29.

Claims 8 and 24 are dependent on claims 1 and 17, and incorporate the limitations of claims 1 and 17, respectively. Meehan '419 does not address the deficiencies argued with respect to Tan et al. '323 and Nguyen '872 in claims 1 and 17. Thus, the combination of Tan et al. '323, Nguyen '872, and Meehan '419 does not render claims 8 and 24 obvious.

In view of the foregoing, Applicants respectfully submit that the cited prior art, taken alone or in the suggested combinations, does not support a *prima facie* case of obviousness under the provisions of 35 USC §103. Accordingly, Applicants contend that the pending claims are patentable over the prior art of record, and an early indication of same is requested.

The Commissioner is authorized to charge Deposit Order Account No. 19-0079 for any further fee that is required or credit this account for any overpayment that is received in connection with the accompanying Amendment for the referenced application.

Respectfully submitted,



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